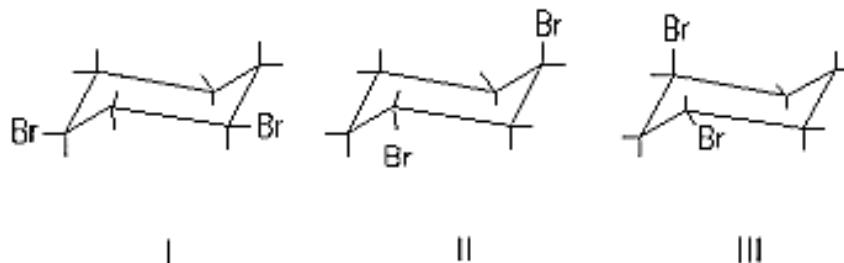


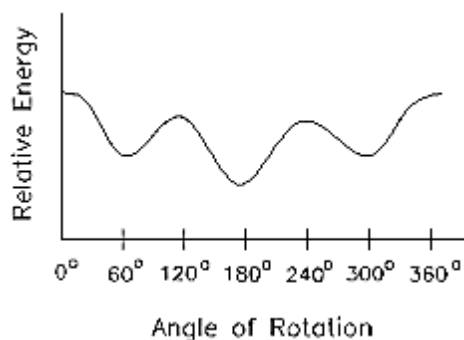
Homework/Problem Set #4
Chapter 3 and 4.8-4.19

1. cis-1,3-Dibromocyclohexane is represented by structure(s):



2. The most stable conformation of trans-1-tert-butyl-4-methylcyclohexane is the one in which:
- A) the tert-butyl group is axial and the methyl group is equatorial.
 - B) the methyl group is axial and the tert-butyl group is equatorial.
 - C) both groups are axial.
 - D) both groups are equatorial.
 - E) the molecule is in the twist boat conformation.

3. The graph below is a plot of the relative energies of the various conformations of:



- A) Ethane
 - B) Propane
 - C) Chloroethane
 - D) 1-Chloropropane (C1-C2 rotation)
 - E) Butane (C1-C2 rotation)
4. The synthesis of an alkyne precursor to 2,2-dimethylheptane is accomplished most effectively by the reaction between these two reagents:
- A) $\text{CH}_3\text{CH}_2\text{CH}_2\text{C}\equiv\text{CNa}$ and $(\text{CH}_3)_3\text{CBr}$
 - B) $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CNa}$ and $(\text{CH}_3)_3\text{CCH}_2\text{Br}$
 - C) $(\text{CH}_3)_3\text{CC}\equiv\text{CNa}$ and $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$
 - D) $(\text{CH}_3)_3\text{CCH}_2\text{CH}_2\text{C}\equiv\text{CH}$ and $\text{CH}_3\text{CH}_2\text{I}$
 - E) $\text{HC}\equiv\text{CNa}$ and $(\text{CH}_3)_3\text{CCH}_2\text{CH}_2\text{Br}$